ten minutes at 60° C. This method of testing is based upon the fact that if normal serum is heated it no longer incites phagocytosis, whilst in cases suffering from tuberculous infection "incitor elements" have been elaborated in the organism in response to the infection, and the serum is found, after heating, to retain a considerable measure of its power of inciting phagocytosis. In a series of experiments with normal heated sera the index varied between 0·00 and 0·125; whilst in experiments conducted with the heated sera of patients with tubercular infections the index ranged from 0·09 to 1·7. These figures are obtained by comparison of their phagocytic count with that obtained with unheated pooled blood of healthy men.

In a previous paper (Roy. Soc. Proc., vol. lxxiv., p. 157), Dr. Wright suggested that the fact that the actual focus of infection had a lowered "bacteriotropic pressure" as regards the offending microorganism might be employed in the diagnosis of abscesses or effusions of a doubtful nature, the inference being that the fluid has washed over these bacteria at the site of infection, and has thus been deprived of its antibacterial substances. In this paper an interesting and convincing series of cases is given showing the practical value of this method of diagnosis of tubercle. Further justification for this would seem to be furnished in the proof of the "specificity" of opsonins for given bacteria as demonstrated by Dr. Bulloch in a recent number of the Proceedings of the Royal Society.

The same number of the Proceedings of the Royal Society contains a further paper by the same authors on "Spontaneous Phagocytosis," and on the phagocytosis which is obtained with the heated serum of patients who have responded to tubercular infection. Under the first heading the authors investigate the question of the phagocytosis which occurs in the absence of serum; under the second, the question as to the nature of the "incitor element" referred to above as being present in the heated blood derived from patients who have responded to the tubercular infection, or, as the case may be to the inoculation of a tubercle vaccine.

As the result of searching experiments, the authors conclude that the "incitor element" is not a "stimulin" which affects the white blood corpuscles, but an opsonin which enters into combination with bacteria. They further conclude in this matter, in agreement with the previous work of Dr. Dean (Proc. Roy. Soc., B., vol. lxxvi.), that the substance in question does not differ with respect to its resistance to heat and sunlight from that which is found in the unheated normal serum.

That the opsonins are eminently heliolabile is also of great practical import, for a blood allowed to lie in the sunlight preparatory to its examination for opsonins is entirely spoilt, as is shown by experiment in the present paper.

As regards spontaneous phagocytosis an important fact was arrived at, namely, that it is in the lowest salt concentrations (0·6 per cent. NaCl) that phagocytic activity is greatest, whilst it is practically abolished by a concentration of more than 1·2 per cent.

Another experiment of practical moment is worthy of mention. When dealing with heated sera, which, as we saw above, may be used as aids to diagnosis, it is very important that the same conditions should exist in every case, for the phagocytosis occurring after the serum had been exposed to various temperatures for varying periods was found to differ considerably. Thus a fixed temperature (60° C.) for a fixed period (10 minutes) should always be employed in the exploitation of this method of diagnosis.

NOTES.

THE Mackinnon studentships for the year 1906-1907 have been awarded by the Royal Society to Mr. W. G. Duffield, "for the study of arc spectra of metals under high pressures"; and to Dr. F. H. Scott, "for the continuation of studies on the nature of the process of excitation ‹ nerve cells.'

THE arrangements for the international celebration of the jubilee of the coal-tar industry to which attention has been directed in these columns are now well advanced, and a very representative gathering of foreign chemists will assemble in London on July 26–27 in honour of Dr. Perkin and his work. As might have been expected in view of the great development of the industry in Germany, that country will send a very strong body of delegates. Among those who have already accepted invitations are Prof. Emil Fischer, representing the German Chemical Society; Drs. Duisberg and Delbrück, representing the "Verein Deutscher Chemiker"; Drs. Böttinger (Elberfeld), H. Caro (Mannheim), Ehrhardt (Badische Co.), Kallé (Biebrich), Klingemann (Cassella and Co.), H. Erdmann (Charlottenburg Technical High School), Kremers, Lepsius (Griesheim), Raschig (Ludwigshafen), Möhlau (Dresden), Gustav Schultz (Münich); and Drs. Bablich, Liebert, de Ridder, Albrecht Schmidt, and Ullrich, representing the Höchst colour works. It is probable that Prof. Liebermann and Drs. v. Martius and Bernthsen will also be present. From France, M. Gautier, president of the Chemical Society of Paris, and Prof. Haller will represent their society. Profs. Étard, Moureu, and Guyot will also attend as representatives of France. Holland will be represented by Profs. Holleman and van Romburgh, Austria by Prof. Friedländer, and Switzerland by Prof. Hans Rupe. America, as already announced, proposes to have an independent celebration in the autumn, but will also participate in the general international movement. The American delegates have not yet been nominated. At the banquet on July 26 all the foreign delegates will be present as guests, and it is hoped that the chemists of this country will attend in large numbers. At the meeting at the Royal Institution on July 26 Dr. Perkin will receive the Hofmann medal of the German Chemical Society and the Lavoisier medal of the Chemical Society of Paris, besides numerous addresses from the learned and technical societies. Among the names of officials and public men who have so far responded to the invitation to attend the banquet are Lords Kelvin, Rayleigh, and Alverstone, the German Ambassador, the Right Hon. R. B. Haldane, Mr. Justice Buckley, Sir Wm. Broadbent and Sir Arthur Rücker. All applications for tickets for the dinner and other functions should be addressed to Dr. J. C. Cain, 28 Pembury Road, Clapton, N.E. As the gathering is expected to be a very large one, it is desirable that those proposing to be present should communicate at once with Dr. Cain so that the necessary arrangements for their accommodation may be made.

THERE are now on exhibition at the London Hippodrome three microcephalic girls stated to have come from Mexico. Like the famous Maximo and Bartola, who toured the world some fifty years ago and were described to the Ethnological Society by Sir Richard Owen. The present specimens are said to be members of an almost extinct race closely allied to simians; but microcephaly is not associated with any particular race, and the information was probably suggested by the statements made as to the origin of the earlier pair. Although they are often monkey-like, the microcephalics are not technically simian in their characteristics; in some cases they have a small vocabulary, in others they

are mute so far as real language is concerned. The skull capacity has been known to fall as low as 270 cm., but the present immature specimens are said to have brains only one-seventh the normal size.

IN connection with the third International Colliery Exhibition recently held at the Royal Agricultural Hall, a representative gathering of delegates from mining and allied institutions in different parts of the world was entertained at luncheon by Mr. H. Greville Montgomery, M.P. It was unanimously resolved by the assembly to hold an International Mining Conference in connection with the fourth International Colliery Exhibition in 1908. An organising committee was elected, and among its members are:—Mr. J. C. Cadman, Prof. S. Herbert Cox, Mr. W. Cullen, Prof. Dunstan, F.R.S., Mr. W. B. Esson, Prof. W. Gowland, Mr. E. M. Hann, Mr. T. H. Holland, F.R.S., Mr. J. H. Marr, Mr. T. W. Mitchell, Mr. W. H. Patchell, Mr. H. M. Ridge, Mr. W. Rowley, and Mr. W. Russell, C.B., with Mr. H. Greville Montgomery, M.P., as chairman, and Mr. Allan Greenwell as secretary. All communications should be addressed to the secretary at the offices (provisional) of the conference, 30–31 Furnival Street, Holborn, London, E.C.

THE committee of bibliography and of astronomical sciences of the Royal Observatory of Belgium has undertaken to publish a list of the observatories and astronomers of the whole world. A request for information, in the form of a list of questions, with a model reply relating to the astronomical service at the Uccle Observatory, Belgium, has been addressed to directors of observatories. In addition, the list will include such astronomers (university professors, amateurs, &c.) who are not attached to any observatory, but are nevertheless actively engaged in astronomical research. The information already sent will enable the committee to draw up, not only a list of observatories, with their geographical coordinates and the members of the staff, but also a table showing the astronomical activity of the whole world, based upon the information given as to the instruments at the disposal of each institution, the researches undertaken, and the papers published. Directors of observatories who have not received the question-form, or have not yet forwarded a reply, as well as unattached astronomers, are requested to send the information desired, or to repair any omissions, as soon as possible to the chairman of the committee, Prof. P. Stroobant, astronomer at the Royal Observatory of Belgium, Uccle, Belgium.

THROUGH the death of Prof. H. A. Ward, who was struck down by a motor car on July 5 in Buffalo, U.S.A., a figure well known to every museum and mineral dealer in Europe and America has passed away. Prof. Ward was born at Rochester, N.Y., in 1834. For a short period he assisted Prof. Agassiz at Harvard Scientific School; in 1855 he went to Paris for a course of study, and travelled thence widely over Europe; from 1860 to 1865 he was professor of natural science in Rochester University. From that period until his death, most of his time was spent in travelling for the purpose of forming collections of mineralogical and geological specimens, which are well known as "Ward's Cabinets." To geological literature Prof. Ward contributed little of importance, but as a collector he did valuable service. He had built up the most complete private collection of meteorites in existence; in extending it he spared neither time nor money; though more than seventy years of age, he passed through London last year on his way to cross Europe, searching for new specimens with the ardour of a boy.

WITH the Earl of Grey, G.C.M.G., Governor-General of Canada, as patron, and Sir L. A. Jetté, Lieutenant-Governor of Quebec, as honorary president, the fifteenth International Congress of Americanists will meet at Quebec from Monday, September 10, to Saturday, September 15. The work of the congress will have reference to:—(1) The native races of America, their origin, geographical distribution, history, physical characters, languages, civilisation, mythology, religions, morals and habits. (2) The indigenous monuments and the archæology of America. (3) The history of the discovery and European occupancy of the New World. The committee of organisation is as follows:—President: Dr. Robert Bell, F.R.S., director of the Geological Survey of Canada, Ottawa. Vice-Presidents: Mgr. J. C. K. Laflamme, Dean of the Faculty of Arts, Laval University, Quebec; Hon. R. A. Pyne, Minister of Education of the Province of Ontario, Toronto; Dr. D. Boyle, Department of Education, Toronto. General Secretary: Dr. N. E. Dionne, librarian, Legislative Assembly. Treasurer: Mr. Alp. Gagnon, Department of Public Works, Quebec.

IN a long and interesting article in the *Times* of July 9 on the commercial application of wireless telegraphy, the writer deals very fully with the history of wireless telegraphy and with the various systems now being worked on a commercial basis. The claims of the various systems are clearly put forward, and should prove of interest to the non-technical readers who are mostly inclined to the opinion that the words "wireless telegraphy" and "Marconi" are synonymous. Among the many systems which have been developed since Mr. Marconi achieved success, may there not be one or more which is entitled to an equal consideration by the authorities? This is one of the chief points raised by the *Times* correspondent, and it is one which in the interests of the nation should be fully recognised. So long as one company is granted a monopoly, the cost for commercial use is likely to remain high, and any improvements which might be made through fair competition are unlikely to be developed in the same proportion. In Germany a combination of the various systems has been made, and any new improvement brought out is thus welcomed and given the fullest consideration. In this manner the highest efficiency is obtained, and if some similar arrangement could be arrived at in this country it would surely be to the benefit of the country at large. As to whether it would be more to the interests of the nation for the Government to own and work the wireless telegraph stations, when, by a fair trial, the best system or combinations of systems has been established, is a matter which wants the fullest consideration, and before any further licences are granted to any company or companies, this aspect of the situation should be one of the first points to be decided by the authorities in whose charge the welfare of the country is placed.

PROF. HÖNNANN, professor of mining in the Berlin Technical High School, died on June 30 in his seventy-first year.

THE twenty-third annual congress of the Royal Sanitary Institute was opened at Bristol on Monday under the presidency of Sir Edward Fry, F.R.S.

PROF. WALTHER VON LINGELSHEIM, director of the hygiene station in Beuthen, Upper Silesia, has been appointed director of the newly founded hygiene institute in the same town.

DR. WILHELM BODE, departmental director of the Emperor Frederick Museum in Berlin, has been appointed

Director-General of the Berlin Royal Museums, with the rank of Wirklicher Geheimer Oberregierungsrath.

THE Berufsgenossenschaft der chemischen Industrie held its twenty-second ordinary meeting in Detmold on June 28, and sanctioned the spending of half a million marks for the erection of the society's business premises.

DR. THEODOR MEYER, whose work on the commercial preparation of sulphuric acid has given him a high place among technical chemists, has been appointed director of the installations bureau for the German chemical industry, in Berlin, Kurfürstendamm 139, in succession to the late Dr. H. H. Niedenführ.

PROF. HUGO VON GILM died in Vienna on June 21, in his seventy-sixth year. Born in Innsbruck, he studied at the university under Prof. Hlasiwetz, whose assistant and co-worker in several pieces of research in organic chemistry he subsequently became. From 1863 to 1895 he was first lecturer, and ultimately professor of chemistry and chemical technology in the Vienna Landesoberreal- und höheren Gewerbeschule.

PROF. EMIL JACOBSEN celebrated his seventieth birthday on July 3 in Charlottenburg, where he has lived for many years. He was born in Danzig, and studied as a pharmaceutical student in Breslau and Berlin. In 1862 he opened an analytical laboratory in Berlin, in which he made a number of valuable observations and discoveries. Dr. Jacobson is the originator and editor of several successful periodicals. From 1862 to 1903 he issued an annual publication under the title of the *Chemisch-technisches Repertorium*, and from 1864 to 1894 the weekly paper *Industrie Blätter*, while from 1878 to 1895 he was the director of the *Chemische Industrie*.

AN earthquake shock was felt at Manstrae, Alva, and Blairlogie, in Perthshire, about 3.45 on July 4. The tremor, which passed from west to east, lasted about two seconds, and was accompanied by sounds as of distant explosions.

THE annual exhibition of antiquities connected with the Institute of Archæology, University of Liverpool, will be held in the Lord Derby Museum, Public Museums, Liverpool, from July 11 to July 26 inclusive. The exhibits include prehistoric remains from Hierakonpolis; examples of provincial art from Esna, of Hyksos period and later; scarabs, ornaments, and inscriptions from Abydos, of 2000 to 1200 B.C.; pottery and other remains of primitive man, from Kostamr.eh in Nubia, recently discovered by Mr. John Garstang and Mr. E. Harold Jones.

FROM the ashes of the monthly magazine of current scientific investigation, *Science Progress*, which came to an end in 1898 through lack of support, has arisen a quarterly review under the same title, edited, with the assistance of a strong advisory committee, by Dr. N. H. Alcock and Mr. W. G. Freeman, and published by Mr. John Murray. The periodical has much the same appearance as its predecessor, and the contributions to it are of the same character. There are twelve articles in which methods and results of work in several departments of science are described by writers actively engaged in scientific investigation. The contributions are thus trustworthy statements of the position and progress of important subjects of scientific study, the biological sciences being given particular attention. In the first number the endeavour of the new periodical is stated to be "to present summaries, as far as possible of a non-technical character, of important recent work in any branch of science, to show the progress achieved, and if possible to indicate something of the line along which further advance is to be made towards the desired end. The chemist, to take an example, will describe for the botanist recent advances in chemistry, the botanist will do the same service for the chemist, often, it is hoped, to the advantage and assistance of both." These intentions are, of course, admirable, and the only difficulty to be anticipated is in their application. Scientific work is so minutely specialised that the vocabulary common to all investigators is somewhat limited; and the greatest trouble the editors will have will be to obtain authoritative articles on subjects of prime importance written in a style that can be read with ease and interest by the world of science in general, while at the same time they appeal to the wants of students of special branches of scientific inquiry. We trust that the new review will be successful in its attempt to provide a common meeting-ground for men of science, where workers in biological and physical sciences can lead one another to appreciate the significance of progress made in their respective departments of natural knowledge.

WE have received a copy of an illustrated prospectus of the new edition of the "Systematisches Conchylien-Cabinet" of Martini and Chemnitz, now in course of issue by Messrs. Bauer and Raspe, of Nürnberg, under the editorship of Dr. W. Kobelt.

FROM the University of Wisconsin we have just received a copy of No. 115 of the Bulletin of that institution bearing the date of September, 1905. It is devoted to a review of the rise and progress of the study of anatomy in the United States, drawn up by Prof. C. R. Bardeen, and delivered as an inaugural address on his assumption of the chair of anatomy in the University. The discourse includes a reference to the early history of anatomy. In the University of Wisconsin a special department has been recently established for the study of human and comparative anatomy, neurology, histology, and embryology.

"NOTES on Malayan Pigs" is the title of an illustrated paper by Mr. G. S. Miller forming No. 1466 of the Proceedings of the U.S. National Museum. As the author has had the advantage of studying large series of specimens in the museums of Washington, London, Berlin, Leyden, and Berne, it may be hoped that this communication will do much towards settling the vexed question as to the number of distinguishable representatives of the genus Sus inhabiting the Malay area, although it is possible that what Mr. Miller regards as "groups" other naturalists may consider "species." Several new forms are named.

No. 1468 of the Proceedings of the U.S. National Museum is devoted to a collection of fishes from Ecuador and Peru, the new forms described by the author, Mr. E. C. Starks, including several cat-fishes (Siluridæ). In No. 1476 of the same serial Messrs. Jordan and Snyder describe two giant bass from Japan, namely, *Stereolypis ischinagi* and *Erilepis zonifer*, both of which have been long known to science, although imperfectly represented in collections. Despite the fact of both being commonly known as "bass," the two species are referable to distinct families. One example of the former was about 6 feet in length, while a specimen of the latter measured 57 inches, and other specimens are stated to weigh as much as 200lb.

BOTANY is the main subject in the June number of the *American Naturalist*, the "notes" being entirely devoted to that subject, while Dr. K. M. Wieland discourses at considerable length on the causes of the pressure and flow of sap in the maple. Osmosis from one living cell to another is, in Dr. Wieland's opinion, the only *vera causa* for the latter phenomenon. "Only by flow through the cell from one reservoir to another, due to the unequal

osmotic permeability at the two ends, does it seem possible to obtain pressure by this method. . . . The pith-ray cells seem the only ones in the wood in position to fulfil the above requirements. The most probable explanation at present is that the pith-ray cells, stimulated by the rising temperature, become unequally permeable, thus setting up a current and accompanying pressure from the pith towards the bark." Two shorter articles, one by Mr. R. C. Osburn and the other by Mr. A. S. Pearse, respectively deal with the existence of dragon-fly larvæ in brackish water and with the reactions to chemical and other stimuli of the hydroid polyps of the genus Tubularia.

THE June issue (vol. vii., No. 3) of the Journal of the Marine Biological Association of the United Kingdom opens with an obituary notice of the late Prof. Weldon, who was one of the oldest workers at the laboratories, and one of the most earnest and enthusiastic supporters of that institution. This is followed by an illustrated paper on certain British nudibranchiate molluscs. A report is appended on the work of the council in connection with the International Fishery Investigations. In order to carry out efficiently the work in the North Sea, it was found advisable to establish a laboratory at Lowestoft. The experiments with marked plaice have proved the occurrence of extensive migrations on the part of that species. Very noteworthy are some of the hydrographical results, especially in relation to the fact that the waters of the North Sea and the English Channel have, respectively, different origins, according to the season of the year. It would appear, for instance, that during the summer and early autumn of 1903, the Channel waters were largely derived from the Irish Sea, while during the remainder of the year they were chiefly drawn from the Bay of Biscay, as indicated by their excessive saltness. The issue closes with the report of the working of the laboratory, &c., during 1904-5.

AN important communication on the morphology of fishes appears in the June issue of the *Quarterly Journal of Microscopical Science*, in which Mr. E. S. Goodrich discusses the development, structure, and origin of the median and paired fins. It is shown that the mode of development of the dorsal fins is essentially the same as that of the paired fins, both arising as longitudinal folds, into which grow buds from the myotomes, these being subsequently affected by concentration and fusion. The careful and detailed observations of the author practically give the death-blow to the theory that the paired fins of fishes (and consequently the limbs of vertebrates generally) are derived from modified gill-arches, for, as is mentioned in the text, that theory gives no explanation of this remarkable structural resemblance of the paired to the median fins. On such a theory the resemblance is in truth absolutely inexplicable, whereas on the lateral (and median) fold-theory such a resemblance is not only easy of explanation, but is precisely what we should expect to occur. Mr. Goodrich has done good service in brushing aside collateral issues and putting the *crux* of the problem plainly before his readers, and it may be hoped that his efforts will result in the general acceptance of the lateral fold-theory. The contents of the above-named issue of the *Quarterly Journal of Microscopical Science* also include a continuation of Dr. Woodcock's review of the hæmoflagellates, and a preliminary account, by Miss R. M. Harrison, of a newly-discovered organ (consisting of a glandular body between the fifth and sixth abdominal ganglia) in the cockroach.

NOT for the first time American botanists are extending their sphere of operations to British colonies in undertaking an investigation of plants in the Bahama Islands. The collections gathered hitherto by various American botanists have been of a somewhat meagre character, so that Drs. N. L. Britton and C. F. Millspaugh, with the consent of the British botanists concerned, have planned a botanical survey of the group. Under the title "Prænunciæ Bahamenses," Dr. Millspaugh, in vol. ii., No. 3, of the botanical series of the Publications of the Field Columbian Museum, Chicago, treats the orders Amarantaceæ, Euphorbiaceæ, Rubiaceæ, and Verbenaceæ. Under the Verbenaceæ two new genera, Nashia, allied to Lantana, and Pseudocarpidium, allied to Vitex, are founded.

THE systematic articles in the recent part of the Kew Bulletin, No. 4, include a decade of new orchids described by Mr. R. A. Rolfe, and a series of "Diagnoses Africanæ" contributed by Mr. N. E. Brown, among which are several plants collected by the Hon. Mrs. E. Cecil in Rhodesia and Portuguese East Africa. The nature and uses of Chinese wood oil, generally known as t'ung oil, are discussed by Mr. J. M. Hillier, and the tree yielding it is referred by Mr. Botting Hemsley to *Aleurites Fordii*. A number of new species of Indian fungi are recorded by Mr. Massee, who also writes a note wherein he advances arguments proving that potato-disease and potato leaf-curl are more often perpetuated by hibernating mycelium than by diffusion of spores.

THE exhibit organised by the Meteorological Office for the International Exhibition, Christchurch, N.Z., 1906–7, was, by permission of Dr. Shaw, viewed on July 6 by many persons interested in meteorology. The exhibits were intended to illustrate the methods adopted by the Office and by the institutions associated with it, and the results obtained on land and sea. For this purpose instruments, published works, and specially prepared diagrams were arranged according to the branches into which the operations of the Office are divided. Perhaps the most imposing display was in connection with maritime meteorology; many beautiful specimen sheets of monthly charts for the various oceans testified to the care and skill bestowed on this important part of the work of the Office. Among the many objects of interest was a meteorological log contributed by the Prince of Wales when in command of H.M.S. *Thrush*. The details connected with the preparation of weather forecasts and the issue of storm warnings were well represented. Among the most attractive charts may be mentioned one showing the portions of the globe for which daily weather reports are published, with isobaric lines drawn for December 21, 1905, from the charts received; maps showing passages of cyclonic depressions across the British Isles and the prevalence of gales on our coasts. In the section dealing with climatological statistics maps were exhibited showing the stations under the control of the English and Scottish Meteorological Societies and the British Rainfall Organisation. Dr. Shaw contributed some carefully drawn diagrams showing the apparent relation between the yield of wheat and rainfall; meteorological sequences—dry autumn followed by wet spring and *vice versâ*—and the meteorological relations of widely distant regions. Although somewhat of a tentative character, the results were very striking, and led to the conviction that a great step in the right direction had been made in grappling with the multitudinous details at the disposal of the Office. The department dealing with automatic recording apparatus took also a prominent position in the exhibit; some excellent drawings were shown illustrating the mounting and working of the instruments at the first order observatories. Among the instruments exhibited by

some of the principal opticians was a Beckley's anemometer with Whipple's improvements, by which the direction of the vane could be read at any time by pressing the electric button of an indicator placed in any convenient room in the observer's apartments. Another interesting feature was some carefully drawn diagrams illustrating the wind circulation at the South Pole (results of the *Discovery* observations) for each month, both at the surface and in the higher regions of the atmosphere. Mr. Dines exhibited a model of a kite and a meteorograph used for the investigation of the upper air.

THE *Physikalische Zeitschrift* for June 15 contains a description by Prof. Simon, illustrated by plans and photographs, of the new buildings and equipment of the institute for applied electricity in the University of Göttingen. A historical sketch is given of the steady development of the teaching of electrotechnics at Göttingen during the past twelve years, with particulars of the funds available during this period and of the circumstances which have led to the creation of the new "institute."

AN attempt to ascertain the cause of the explosion which sometimes occurs of sealed glass tubes containing radium bromide is described by Mr. Paul L. Mercanton in No. 11 of the *Physikalische Zeitschrift*. Such an explosion might possibly be due to the pressure set up within the tube by some gas being gradually produced by the radium. A glass tube containing 15 mg. of radium bromide, which had been kept sealed during more than three years, was accordingly opened under such conditions as would permit of the measurement of any increase of pressure, and of the examination of any gas liberated from the tube. It was found, however, that no increase of pressure could be observed, nor could the presence of helium be detected.

THE fourth edition of Prof. J. E. V. Boas's "Lehrbuch der Zoologie für Studierende," which has just been published by Mr. Gustav Fischer, Jena, contains much new matter, both in the text and illustrations. There were 378 figures in the first German edition of this work, reviewed in NATURE of January 22, 1891 (vol. xliii., p. 268), and this number has now been increased to 577; while both the general and special parts of the text have been thoroughly revised by the author, with the assistance of Prof. J. W. Spengel, professor of zoology at Giessen.

A SECOND edition, revised and enlarged, of Prof. C. Moureu's "Notions fondamentales de Chimie organique" has been published by Messrs. Gauthier-Villars, Paris. The book is a synopsis of the facts and theories of organic chemistry, and is intended to be an introduction to the study of this science.

OUR ASTRONOMICAL COLUMN.

FINLAY'S COMET.—Writing to the editor of the *Astronomische Nachrichten* (No. 4102), Herr L. Schulhof states that the Jupiter perturbations of Finlay's comet bring the time of perihelion passage forward by about twelve hours, thereby making it September 7·5 instead of September 8·0 as given originally. The uncertainty of the elements is probably not greater than a quarter of a day, so that the perihelion time may now be taken as lying between September 7·25 and September 7·75. On June this comet was twice as bright as when discovered in 1886, and its apparent brightness will steadily increase until the end of August; the observation of the comet is, therefore, very probable.

THE RADIANTS OF THE PERSEID SHOWER.—From a number of observations made at Dorpat during 1901 and 1902, M. Wwedenski, under the direction of Prof. Pokrowski, has determined the following radiants of the Perseid meteors:—

Date of observation.	No. of meteors observed.	Chief radiant point. α	δ
		°	°
1901 Aug. 10	23	40	+57
,, ,, 11	37	47	+58
,, ,, 12	17	47	+56
1902 Aug. 10	17	43	+60
,, ,, 11	27	35	+55

Another set of observations made on August 10 and 11, 1901, gave 40°+57° (24 meteors) and 44°+57° (43 meteors) respectively (*Astronomische Nachrichten*, No. 4098).

MAGNITUDE OBSERVATIONS OF NOVA AQUILÆ No. 2.—The magnitude of Nova Aquilæ No. 2 was observed at the Bothkamp Observatory on seventy-seven occasions between September 5 and December 10, 1905, and the results are given and discussed in No. 4098 of the *Astronomische Nachrichten*. On analysing these results, Dr. Guthnick found that the curve showing the diminution of magnitude was not a straight line, but a parabola of the following form:—

$$m = 10{\cdot}96 + 0{\cdot}0272t - 0{\cdot}000095t^2,$$

where m = the Nova's magnitude at the time of observation, 10·96 its magnitude on September 5, 1905, and t the number of days which elapsed between September 5 and the time of observation. The departure of the observed values from those computed, for the same epoch, from the curve are given in the table accompanying the results.

AN OBJECTIVE-PRISM COMPARISON SPECTROGRAPH.—In No. 5, vol. xxiii., of the *Astrophysical Journal*, Mr. de Lisle Stewart, of the Cincinnati Observatory, proposes a new form of objective-prism spectrograph which might be employed for the determination of stellar radial velocities. Instead of making two exposures with the one instrument, as has been proposed in previous suggestions to this end, Mr. Stewart proposes to employ two similar spectrographs mounted rigidly on one equatorial mounting and having the prism bases adjacent. This would bring the two spectra of each star near together on the plate, and would, presumably, eliminate, at least to some extent, the differential effects of flexure and temperature changes. Various details as to the inclination of the two tubes to each other, the inclination of the plate, the positions of auxiliary telescopes, &c., are given in the paper. Prof. Frost estimates that the probable error of radial velocities so determined would not be less than 20 km., but Mr. Stewart suggests that practical experience would remove the outstanding obstacles to more trustworthy determinations.

RUSSIAN ASTRONOMICAL OBSERVATIONS.—We have recently received five Bulletins of the St. Petersburg Imperial Academy of Sciences, each of which contains one or more papers of astronomical interest. Thus No. 5, vol. xvii. (1902), includes a paper, in French, by Prof. Brédikhine on the *rôle* of Jupiter in the formation of simple radiants, and in vol. xviii. (1903) MM. Donitch and Jaegermann have articles on the solar envelopes during the last minimum and on the production of comets' tails respectively. Vol. xix. (1903) contains several astronomical papers, including one on the observations of the chromosphere outside eclipses (M. Donitch), and another on comet forms (M. Jaegermann). Vol. xx. (1904) is largely astronomical, and includes articles on the Pulkowa spectrograph, the repulsive force of the sun, the solar activity, and the International Catalogue; whilst vol. xxi. (1904) contains papers by Prof. Belopolsky dealing with radial-velocity problems.

A NEW OBSERVATORY FOR HAMBURG.—From *Himmel und Erde* (No. 8, 1906) we learn that a new observatory is to be erected near Hamburg. The senate and council of that town have voted one million marks towards its erection and equipment. Among the other instruments which it is proposed to instal in the new building, the following are the chief:—A meridian circle of 18 cm. (7 inches) aperture, a 60 cm. (23 inches) refractor, a double telescope for photographic purposes, and a reflector having a mirror of 1 metre diameter.